

# **ECONOMIC EFFECT OF THE STATEWIDE BAN ON SMOKING IN RESTAURANTS AND BARS IN ARIZONA**

**August 2008**

**Produced for the Arizona Department of Health Services**

L. William Seidman Research Institute  
W. P. Carey School of Business  
Arizona State University  
Box 874011  
Tempe, Arizona 85287-4011

(480) 965-5362  
FAX: (480) 965-5458  
EMAIL: [wpcareyseid@asu.edu](mailto:wpcareyseid@asu.edu)  
[www.wpcarey.asu.edu/seid](http://www.wpcarey.asu.edu/seid)



## **PREFACE**

On November 7, 2006, the voters of Arizona approved the Smoke-Free Arizona Act, listed as Proposition 201 on the November 2006 ballot. The new law (Arizona Revised Statute 36-601.01) specified that the Act was to be implemented and enforced by the Arizona Department of Health Services. The Smoke-Free Arizona Act went into effect on May 1, 2007.

In December 2006, the Arizona Department of Health Services requested that the L. William Seidman Research Institute, W. P. Carey School of Business, Arizona State University conduct a study of the economic effect of the Smoke-Free Arizona Act. This report presents the findings from that study.

## CONTENTS

Executive Summary	1
Introduction	2
Literature Review	4
Studies of Aggregate-Level Measures	4
Studies Based on Surveys	5
Papers Focusing on Methodological Issues	6
Studies Focusing on Arizona's Local Smoking Bans	6
Methodology	7
Survey Results	9
Characteristics of Establishments	9
Factors Affecting Business	13
Business Conditions	15
The Smoking Ban as a Factor Affecting Business	15
Establishments Citing the Smoking Ban as Having the Most Effect	16
Differences in Responses Among Three Groups	18
Change in Growth Rate of Revenue Between 2006 and 2007	20
Closed Businesses	21
Analysis of Actual Restaurant and Bar Sales	23
Long Time Series of Broad Categories	23
Comparing Actual Restaurant and Bar Sales to Forecasted Values	24
Short Time Series of Specific Categories	25
Comparing Actual Ratios to Forecasted Values	28
Conclusions	30
References	32
Appendix A: Survey Instrument	34
Appendix B: Complete Survey Results	36

### Charts

1. Arizona Restaurants and Bars Allowing Smoking in 2007 and 2008	10
2. Arizona Restaurants and Bars by County	11
3. Year-Over-Year Percent Change in Unadjusted Sales in Arizona	24
4. Restaurant and Bar Tax Collections in Arizona	26
5. Restaurant and Bar Sales in Arizona as a Ratio of Retail Sales Less Big-Ticket Items	27
6. Ratio of Restaurant and Bar Tax Collections to Tax Collections of Retail Less Big-Ticket Items in Arizona	29

### Tables

1. Factor Most Affecting Arizona Restaurants and Bars in 2007 and 2008	14
2. Respondents Indicating That the Smoking Ban Was Having the Most Effect on Business	17

### Maps

1. Location of Those Establishments That Responded in Both 2007 and 2008	12
2. Location of Those Establishments That Cited the Smoking Ban as Having the Most Effect on Their Business	19

## **EXECUTIVE SUMMARY**

The statewide smoking ban that went into effect on May 1, 2007 in Arizona did not result in any distinguishable large-scale economic effect on the restaurant and bar industry in the state. However, the ban appears to have had a negative effect on some businesses and a positive effect on others.

The conclusion that a macroeconomic effect has not occurred comes from an analysis of actual aggregate sales data for restaurants and bars in Arizona. This conclusion is consistent with most studies that have analyzed the effect of smoking bans in communities around the world by analyzing actual sales data.

The apparent differential effect of the statewide smoking ban from establishment to establishment comes from the results of a survey of owners and managers of restaurants and bars in Arizona that was conducted prior to the implementation of the ban and repeated a year later. This conclusion is consistent with most studies that have analyzed the effect of smoking bans by surveying the restaurant and bar industry.

Previous studies have found that bars, which typically have a higher proportion of smoking customers, are more likely to be affected by smoking bans than restaurants. Establishments that serve alcohol also have been found to be more affected. The results of the survey of restaurants and bars in Arizona are in line with these earlier studies. The smoking ban was indicated to be the factor having the most effect on business by a considerably higher proportion of bars than restaurants that serve liquor. Hardly any restaurants without a liquor license mentioned the ban.

In particular, approximately one-fifth of the bars that had allowed smoking prior to the implementation of the statewide smoking ban cited the ban as having the most effect on their business. In contrast, only about one in 20 of the restaurants with liquor licenses that had allowed smoking prior to the ban cited the ban as having the most effect. Those citing the smoking ban reported weaker revenue growth in 2007 relative to 2006 than those not mentioning the ban. In contrast, some establishments indicated that they were benefiting from the smoking ban. For example, a bar with a large and well-furnished outdoor smoking patio may be benefiting while a bar with only inside seating may be suffering.

If the smoking ban is having an adverse effect on some establishments, the effect does not appear to be so severe as to cause the business to fail. The percentage of restaurants and bars surveyed in 2007 that had closed by 2008 was not higher than expected, and the number of bars failing was quite small. Not one of the closed businesses mentioned the smoking ban in the 2007 survey, nor was the ban mentioned once by the minority of closed businesses for which reasons for their closing were obtained.

The survey approach has certain shortcomings. Sampling error and nonresponse bias are common issues. A challenge for respondents to this survey was to separate the possible impact of the smoking ban from the general decline in economic conditions that began around the time that the statewide smoking ban was implemented. Thus, it may be difficult for an owner or manager to determine if a decline in business activity is a result of the smoking ban, the decline in general economic conditions, or some other factor.

## INTRODUCTION

Though the incidence of smoking has declined over time in the United States, one-in-five American adults still smoke. According to the Centers for Disease Control and Prevention, the estimated prevalence of smoking in Arizona in 2006 (the latest year available) was 18.1 percent, a little below the median state's figure of 20.2 percent. As the evidence of the negative effects of second-hand smoke has increased, more communities have adopted policies that ban smoking in public places. As bans have gone into effect around the country, restaurant and bar owners in particular have been concerned about the potentially adverse effect on their business of such nonsmoking policies.

The purpose of this report is to examine the economic effect of the statewide smoking ban that went into effect on May 1, 2007 in Arizona. In November 2006, the Arizona electorate approved the Smoke-Free Arizona Act (Proposition 201), making Arizona the 16th state to pass a comprehensive clean-indoor-air act<sup>1</sup>. Arizona's Act established a statewide prohibition on smoking in public places and places of employment, with certain exceptions. Such exceptions include certain retail tobacco stores that derive the majority of sales from tobacco products, veterans and fraternal clubs when they are not open to the general public, hotel rooms that are designated as smoking rooms (no more than fifty percent of the rooms are designated as smoking), and outdoor patios. Indian reservations are not affected by Arizona's smoke-free law.

Under this new law, a business owner is required to prevent smoking from occurring inside the establishment, but smoking can be allowed outside in a patio area as long as the smoke from the patio does not drift into the indoor area and as long as the outdoor patio meets the requirements defined by the Arizona Administrative Code R9-2-108. In general, smoking is not allowed within 20 feet of entrances and exits.

The statewide smoking ban was preceded by several local bans<sup>2</sup>. Flagstaff implemented a smoke-free ordinance in 1993, but certain restaurants and bars were exempted. Mesa enacted a more comprehensive smoke-free law in 1996, but following challenges it exempted certain bars. Tucson's smoke-free ordinance (1999) allowed restaurants to file for hardship exemptions. It was quickly followed by one enacted for all of Pima county that exempted bars. The smoke-free ordinances passed by Tempe and Guadalupe (both in May 2002) were Arizona's first 100 percent clean-indoor-air acts that included bars. They were followed by similar ordinances passed in Prescott (2003), Coconino County (2003), Flagstaff (2005), and Sedona (2005). Weaker ordinances went into effect in Gilbert (2001), Surprise (2002), and Peoria (2004).

Unlike prior smoking bans that were limited to certain cities, some of which provided various exemptions, the statewide application and limited exemptions of the Smoke-Free Arizona Act largely created a "level playing field" for businesses since geographically proximate indoor substitutes for smokers generally are not available or are very limited in number. Only those establishments close to Native American lands that choose to continue to allow smoking in enclosed public places, or in establishments close to the state border with a nearby community across the border that allows smoking in indoor restaurants and bars, face competition by businesses that allow indoor smoking. The limited number of facilities on Indian reservations

---

<sup>1</sup> Hendlin, Barnes and Glantz (2008)

<sup>2</sup> Same as above

presents little competition for off-reservation businesses, especially in the state's large metropolitan areas.

In order to assess the economic effect of the statewide smoking ban, two independent analyses were conducted as part of this study. The first analysis consists of a survey of eating and drinking establishments across Arizona. The initial survey was conducted prior to the Smoke-Free Arizona Act taking effect in May 2007. The survey was repeated a year later. Later sections of this report discuss the survey methodology and survey results. The second analysis reviews actual aggregate restaurant and bar sales, comparing sales from before and after the implementation of the smoking ban.

The analysis of the effect of the smoking ban on restaurants and bars was complicated by a cyclical change in economic conditions between early 2007 and early 2008. Though economic growth had begun to slow from the peak cyclical gains, the Arizona economy remained strong in early 2007. By the fall of the year, the economy was in recession. Consumer spending was particularly affected. Overall consumer spending in Arizona began to fall — even before adjusting for inflation and population growth — coincident with the implementation of the smoking ban. Restaurant and bar sales weakened during 2007 but did not decline until 2008.

## **LITERATURE REVIEW**

Significant research has been done on the effects of tobacco regulation on the hospitality industry in the United States and in other countries. A comprehensive survey of the existing literature on the economic impact of smoking bans was produced by Scollo and Lal in 2005. They reviewed 151 studies that can be classified into two types: studies based on aggregate-level data, such as taxable sales receipts, and studies based on subjective impressions, such as surveys.

Scollo and Lal concluded that studies that used objective measures such as actual tax receipts generally did not find evidence of any negative economic impact following the introduction of smoking bans. They contended that the few studies that found negative impacts were methodologically flawed. In contrast, studies that used subjective measures or were based on outcomes estimated before the enactment of the smoking policies typically found negative effects. The authors indicated that many of these studies were funded by the tobacco industry.

Thus, conclusions regarding the economic effects of smoking bans have varied based on the type of study employed and the entity producing/funding the study. In addition, results have varied by the type of business. Conceptually, bars are more likely to experience a negative effect than restaurants, with restaurants without liquor licenses less likely to be affected than restaurants with liquor licenses. Further, the geographic extent of a smoking ban makes a difference. Negative effects are most likely in a small community that implements a ban that is surrounded by communities in which a ban is not in place.

### **Studies of Aggregate-Level Measures**

Masotti and Creticos (1991) examined the effects of a local ban on smoking in public places in the city of San Luis Obispo, California. Sales tax receipts during the two years following the ban were examined and compared to trends in the rest of the county as well as the entire state. The analysis revealed that tax receipts of eating and drinking establishments in the affected city dropped significantly, which was not consistent with the trend for the remainder of the county and the state. The authors concluded that the local smoking ban adversely affected restaurants and bars.

Glantz and Smith (1994) are the authors of what is considered the first comprehensive study on the effect of smoke-free ordinances on restaurant revenues. They compared taxable restaurant sales in 15 communities where such ordinances were in force with another 15 communities not subject to smoking ordinances. These communities were located in California and Colorado. They used regression analysis to examine whether total restaurant sales as a fraction of total retail sales differed between the smoke-free cities and the comparison cities, and found that local smoking ordinances did not have a negative effect on restaurant sales.

Glantz and Charlesworth (1999) examined hotel revenues and tourism rates before and after the enactment of comprehensive smoking bans in six cities in three states. They found that the smoke-free ordinances did not have any negative impact and may have increased tourism.

Bartosch and Pope (2002) compared meal tax receipts before and after the imposition of smoking restrictions in 239 adopting versus nonadopting cities and towns in Massachusetts between 1992 and 1998. They found that adoption of the smoking restrictions did not significantly impact meal

receipts. However, they also found that in cities surrounded by nonsmoking communities, per capita restaurant sales were statistically significantly higher than in cities surrounded by communities with no smoking restrictions.

Hyland et al. (2003) examined the effects of smoke-free regulations on taxable sales and employment of restaurants in several counties in the state of New York. They found that sales and employment stayed constant or increased in counties that implemented such regulations.

Fleck and Hanssen (2008) analyzed the effect of smoking bans on restaurant sales in 267 California communities. First, using simplistic trends, they found a positive correlation in the case of municipal bans and a negative effect for the state ban. After they controlled for preexisting trends, they found no effects of any of the bans on restaurant sales. In their conclusions, the authors pointed out that smoking bans implemented at different jurisdictional levels should not be treated as homogenous and that care should be taken to control for trends.

### **Studies Based on Surveys**

Jones, Wakefield and Turnbull (1999) examined the effects of a voluntary smoking ban on 276 restaurants in Adelaide, Australia. The majority of restaurants that voluntarily restricted smoking on their premises reported no change or a gain in business as a result.

Dunham and Marlow (2000), using a nationwide survey of 1,300 restaurants, bars and taverns, focused on the distributional effects of smoking bans and found that they are not uniform across different types of establishments, with bars being twice as likely to experience losses as restaurants.

Cremieux and Ouellette (2001) conducted a survey of 401 restaurants and 600 firms in Quebec before the enactment of a smoking ban in order to assess its costs. They concluded that although firms and restaurants expected high costs associated with the implementation of strict smoking regulation (e.g. infrastructure costs and decreased patronage), none of this was observed in a comparison group that had already adopted voluntary bans. However, restaurant owners' responses regarding expected revenues differed significantly according to their existing smoking policy: 80 percent of those with some voluntary smoking restrictions did not expect a fall in revenues due to the new policies, while 60 percent of those without an existing policy expected a fall in revenues, with a possible explanation being self-selection.

Dunham and Marlow (2003) examined the effects of smoking laws on restaurant owners, customers and workers, including whether restaurant and bar owners altered prices, entertainment, and hours of operation in response to smoking bans. The survey used a sample of approximately 1,000 restaurants and bars in Wisconsin in 2001, some of which were subject to smoking bans and some that were not. An econometric model on changes in profits found that shares of seating for nonsmoking customers, shares of revenues from alcohol, and seating capacity had a negative and significant influence on profits. Furthermore, a restaurant expecting a profit reduction was significantly more likely to raise prices, lower entertainment, and reduce hours of operation.



Hammar (2004) analyzed the revenue expectations of restaurants and bars prior to the implementation of a general smoking ban. The study was based on a sample of 252 dining establishments located in Gothenborg, Sweden. Owners were more likely to expect a decrease in revenues if their share of smoking customers was higher. Establishments that were already nonsmoking were less likely to expect a decrease in revenues compared to those that had allowed smoking.

### **Papers Focusing on Methodological Issues**

Decker and Schwartz (2000) investigated the link between smoking and alcohol consumption, and whether these two goods are substitutes or complements. Their findings suggest that cigarettes and alcohol have a dual behavior: higher alcohol prices lead to a decrease in both alcohol consumption and smoking (suggesting they are complements), but in contrast, higher cigarette prices lead to a decrease in smoking but an increase in drinking.

Pakko (2006) highlighted some of the methodological problems that are present in studies. Omitted variable bias is one problem — if an important influencing factor is excluded, the results may be inaccurate. Other problems include small sample sizes and sample selection bias — communities that implement smoking bans tend to have a lower prevalence of smokers. Further, studies examining the aggregate impact may overlook distributional effects, such as bars being more likely to be affected by smoking bans than restaurants.

### **Studies Focusing on Arizona's Local Smoking Bans**

Two studies examined the effects of local smoking bans in Arizona, one in Mesa and one in Flagstaff. However, both studies had very small sample sizes considering the population of businesses affected by the respective public policies. In the case of the Mesa study conducted by Applied Economics in 1996, only 25 businesses were surveyed. In the 1993 Flagstaff study, few businesses in the sample actually were affected by the smoking ban, with the other respondents opting out of banning smoking in their establishments.

Sciacca and Eckrem (1993) conducted a study of the effects of a city smoking ordinance passed in Flagstaff in 1989 that required restaurants and retail stores to adopt one of three smoking policies: allow smoking in all areas, allow it in designated areas, and do not allow smoking. They surveyed 61 businesses, of which 17 were restaurants. The vast majority of respondents believed that the ordinance did not have any effect on their business. However, only three (18 percent of) restaurants chose to ban smoking entirely on their premises. The study was augmented with actual sales data. Sales increased during the year following the enactment of the ordinance.

The Mesa study involved an analysis of retail sales data as well as interviews with 25 businesses from the hospitality industry conducted one month after the implementation of the smoke-free ordinance in July 1996. The study concludes that, based on the interviews conducted with businesses, the smoking ban negatively affected the hospitality industry: businesses experienced declines in sales, especially liquor sales, and losses in employment and customer base. The analysis of the retail sales data also showed a negative impact — aggregated sales of Mesa establishments dropped by 5.2 percent in the first two months following the implementation of the ordinance when compared to the same two months of the previous year, while controlling for exogenous factors.

## METHODOLOGY

The ideal way to analyze the effect of the statewide smoking ban would have been to collect sales data from individual restaurants and bars for the months immediately preceding and following the implementation of the smoking ban. Such data are not publicly available. Obtaining such data from an adequate number of businesses that were representative of the entire restaurant and bar industry was considered to be highly unlikely. Thus, the analysis of the effect of the smoking ban has to rely on microdata supplied by companies in the survey responses and on macrodata on sales for the entire industry. The remainder of this section discusses the survey methodology; the analysis of restaurant and bar sales is presented later in this report.

The survey was limited to Arizona businesses at which food and/or drinks are served, including restaurants, bars, microbreweries, veterans and fraternal clubs (such as the American Legion), and government facilities (such as at a public golf course). Survey respondents were randomly selected from a list of 10,630 establishments (an establishment is a place of business at a specific location; a company consists of one or more establishments). The list of Arizona establishments was created by merging information from two sources:

- The Arizona Department of Liquor Licenses lists all businesses that have one of 17 types of liquor licenses. All businesses with an active license that serve alcoholic beverages to customers on the premises of the business were included on the list.
- InfoUSA provides company-specific information on businesses across the nation, and was used for those restaurants that do not serve alcoholic beverages.

The master list of 10,630 establishments exceeds the 9,061 restaurant and drinking establishments reported in County Business Patterns, which is produced by the U.S. Census Bureau. The lesser number in County Business Patterns results in part from 2006 being the latest data and because establishments without paid employees during the reference period in March were not included.

Conducted by telephone from the offices at the L. William Seidman Research Institute in Tempe, Arizona, the survey first was administered during February, March and April 2007, just prior to the implementation of the statewide smoking ban. Respondents to the survey were limited to owners or managers. Businesses were contacted randomly from the master list, though establishments serving liquor were oversampled due to prior research that indicated such establishments are more likely to be adversely affected by a smoking ban. A total of 646 surveys were completed, though not every respondent answered every question.

Given the controversial nature of the smoking ban, particularly among operators of bars and restaurants, it was a concern that bias might be introduced by a survey that focused on the smoking ban. Thus, the survey was designed as a general survey of business conditions. This approach differs from that of most other research that analyzed the effects of smoking bans.

Consisting of 15 questions, the survey instrument contained some multiple-choice and some open-ended questions (the survey instrument is presented in Appendix A). The first section of the survey collected information regarding changes in the business's revenues and customer base. The second section asked about factors affecting the business. It included an open-ended question about what factor most was affecting the business. The last part of the questionnaire

collected information about characteristics of the establishment, such as seating capacity, presence of an outside seating area, and smoking policies.

The survey was repeated during February, March and April 2008, several months after the implementation of the smoking ban. The 2008 survey contained virtually identical questions to the 2007 survey. An effort was made in 2008 to contact each restaurant and bar that had responded in 2007. However, in comparison to 2007, the response rate was much lower in 2008. Only 252 (39 percent) of the 646 respondents from 2007 completed the 2008 survey between February and April. A large number of establishments not contacted in 2007 were contacted in 2008 in order to bolster sample size, with 457 of these new contacts completing the 2008 survey. However, since these respondents had not participated in the 2007 survey, the information collected from this group is of limited use.

Thus, a second effort was made to contact respondents from the 2007 survey in July and early August 2008. As a result, a total of 371 (57 percent) of the 646 respondents of the 2007 survey also completed the 2008 survey. The responses of those who answered the survey in the summer were tested against those who answered in the spring. In only a few instances was a significant difference found. A higher proportion of those contacted in the summer offer outside seating and a higher share provide some type of entertainment. Though the age distribution of the businesses was significantly different, offsetting variations meant little practical difference in the responses. The answers to the question on the factor most affecting the business also was significantly different in the summer, primarily due to a large increase in the percentage of respondents indicating that the price of gasoline was the most significant factor.

## **SURVEY RESULTS**

This analysis of the survey results focuses on the 371 respondents who completed the surveys in both 2007 and 2008. Unless otherwise noted, the results reported in this section apply to this subset of all respondents. Not all results from the subset that responded in both years are highlighted in this section. The results from the subset that responded in both years are supplemented at times by the responses of those who participated only in the 2007 survey (N=275) or only in the 2008 survey (N=457). The full results from the subset that responded in both years as well as the subsets that answered only in 2007 or only in 2008 are reported in Appendix B.

The survey responses were analyzed using the statistical package Stata. For the descriptive results, comparisons between proportions were made using  $\chi^2$  (chi-square) tests. Statistical significance is assessed at the standard 95 percent confidence level.

Any survey has multiple limitations, including sampling error and nonresponse bias. This survey has additional issues. Whenever more than one condition is changing at the same time, it can be difficult for any respondent to separate out the effects on their business. Unfortunately, the Arizona economy began to weaken at about the same time that the smoking ban was implemented. More generally, the restaurant and bar industry is highly competitive and therefore volatile.

While many prior studies utilized questions regarding the expected change in revenue or other measures, this question (the third one on the survey) was not emphasized when analyzing the results for two reasons. First, expected revenues are a projection that may not turn out to be accurate. Second, the statewide smoking ban took effect on May 1, 2007 — partway through the calendar year — but the wording of the question asked for expected revenue in the calendar year. When respondents were contacted between February and April of 2007, they were aware that the smoking ban would take effect on May 1, and probably took this into consideration in assessing their expectation of 2007 revenue. Respondents to the 2008 survey already had seen any effects of the smoking ban for eight months of 2007; it is unlikely their expectations would be worse in 2008 than 2007 because of the smoking ban.

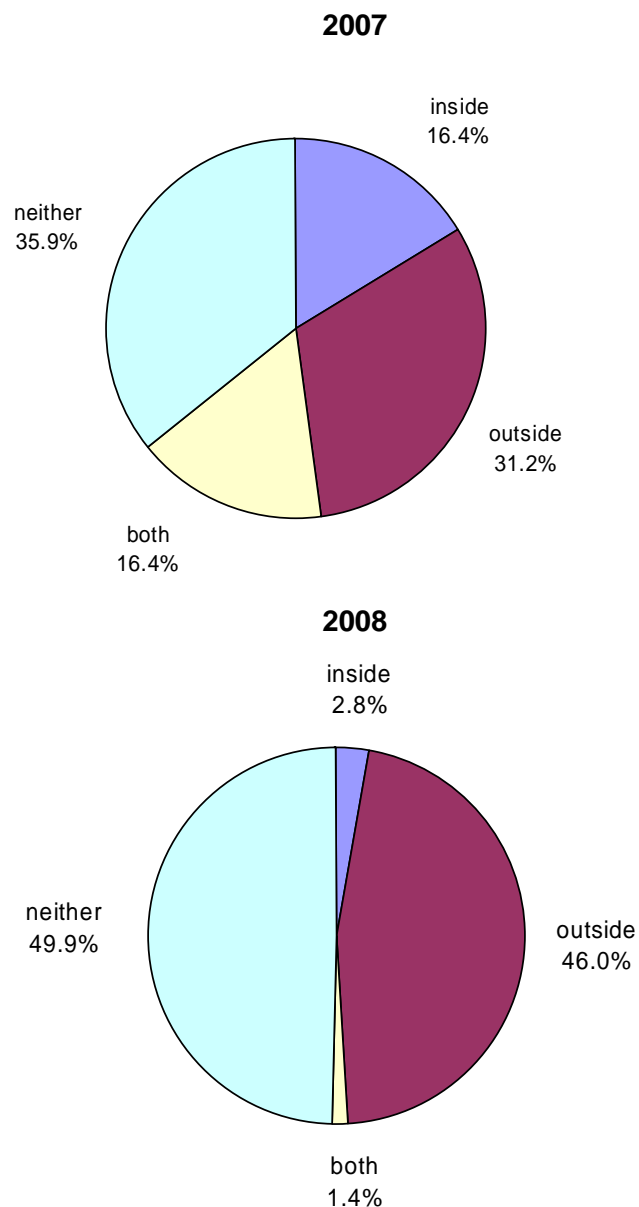
### **Characteristics of Establishments**

Establishments have been categorized into three types: bars, restaurants with liquor licenses, and restaurants without liquor licenses. Among those establishments that responded in both years, 31 percent were bars, 60 percent were restaurants with liquor licenses, and 9 percent were restaurants without liquor licenses. The responses of this subset were somewhat different from those of the subset that responded only in 2007: restaurants not serving alcoholic beverages accounted for a higher proportion at 18 percent, while the share of restaurants with liquor licenses was less at 51 percent. The differences were larger with those that responded only in 2008: half were restaurants without liquor licenses, 32 percent were liquor-serving restaurants, and 18 percent were bars. (Oversampling of those with a liquor license did not occur among those surveyed only in 2008.)

Among those who responded in both years, prior to the implementation of the smoking ban in 2007 approximately 16 percent allowed smoking both indoors and outside, 16 percent allowed

smoking inside, 31 percent permitted smoking only outside, and 36 percent did not allow smoking at all. Due to the implementation of the statewide smoking ban, the results in 2008 were radically different (see Chart 1): The percentage of those who allowed smoking outside increased to 46 percent, while the proportion not allowing smoking at all went up to 50 percent. Only 3 percent still allowed smoking inside and another 1 percent allowed smoking both inside and outside. Of the 15 establishments that indicated that smoking was allowed inside in 2008, seven are veterans and/or fraternal clubs exempt from the smoking ban. The other eight establishments appear to have improperly answered this question in that they are neither veterans or fraternal

**CHART 1**  
**ARIZONA RESTAURANTS AND BARS ALLOWING SMOKING IN 2007 AND 2008**  
**(Subset of Those Establishments Responding in Both Years)**



clubs nor located on an Indian reservation. (While a few respondents are located on leased land on Indian reservations, none allowed smoking indoors in either 2007 or 2008.)

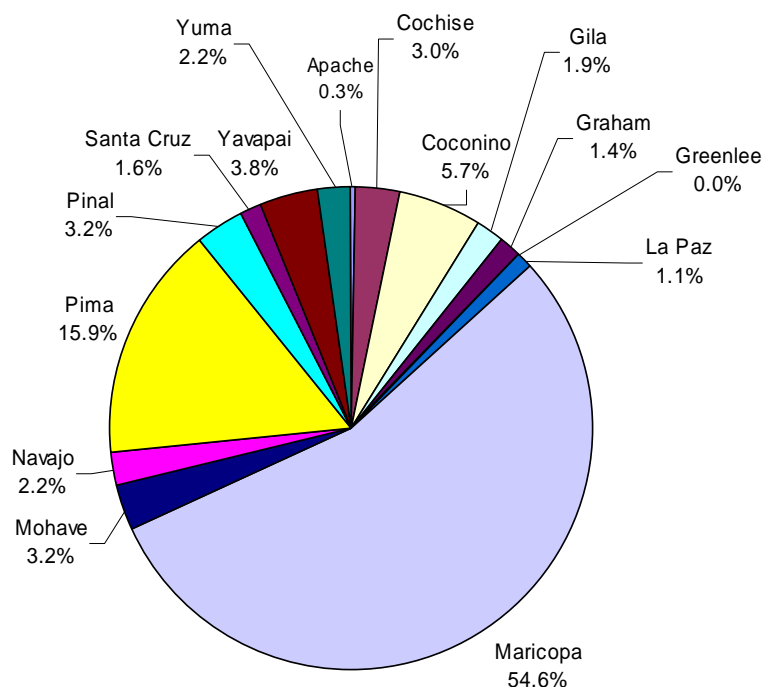
The increase in the proportion with outside smoking was related to an increase in the share of establishments that provided outside seating: from 55 to 60 percent. The increase in the share of establishments providing some form of entertainment (“ambience” in the survey instrument — examples include live music and sports television) was much greater, from 36 to 77 percent.

The length of time in business varied widely, ranging in 2007 from 11 percent in business less than or equal to one year to 12 percent in business for more than 30 years. Some discrepancies were noted in the 2008 responses relative to the 2007 responses. The length of time in business was similar among those responding only in 2007 or only in 2008.

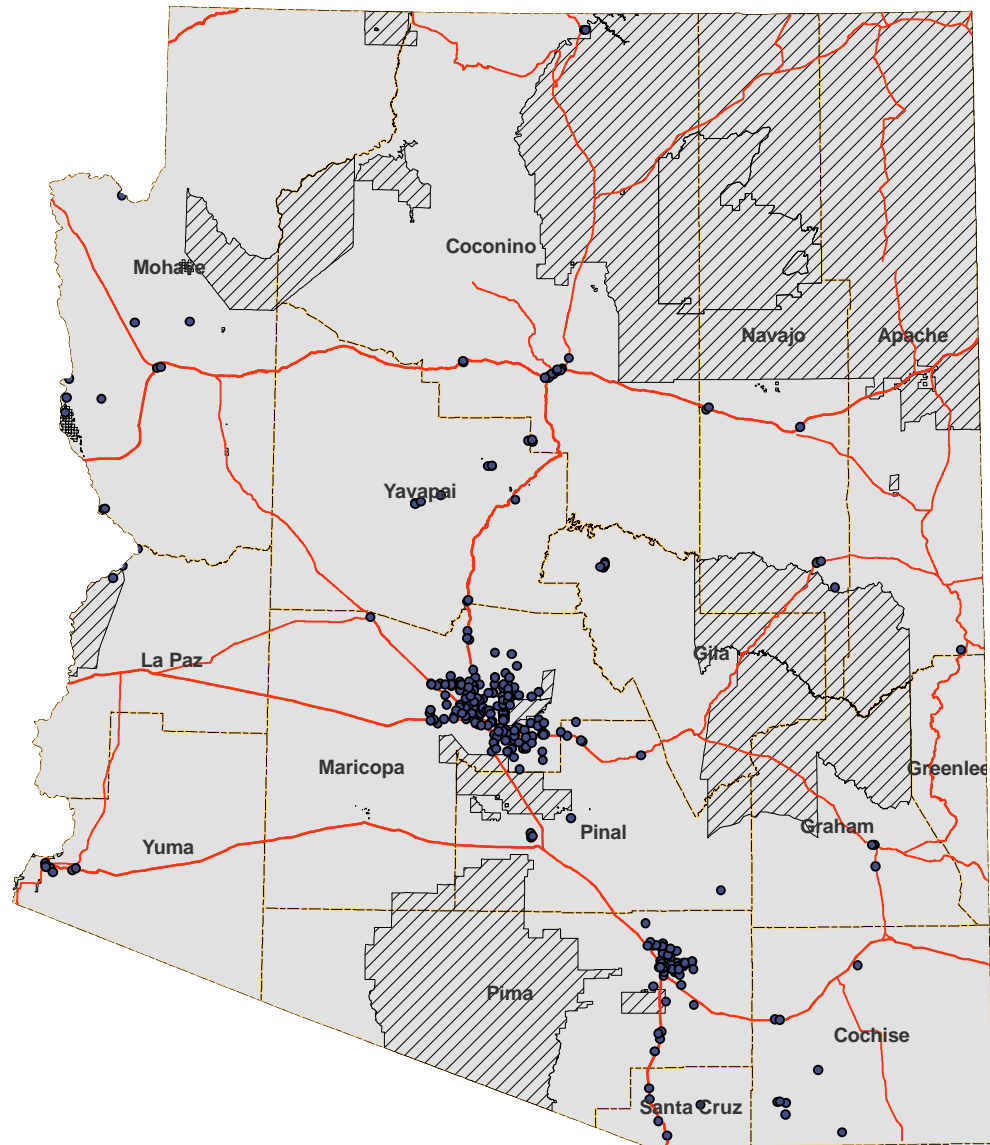
Similarly, the restaurants and bars surveyed in both years had a wide range of seating capacity, with 3 percent having fewer than 30 seats and 11 percent having more than 300 seats. The average number of seats was lower among those responding only in 2007 or only in 2008.

The location of those who responded in both years is presented by county in Chart 2. The shares generally are similar among those responding only in 2007 or only in 2008. For a more detailed depiction of the location of the responding establishments, see Map 1.

**CHART 2**  
**ARIZONA RESTAURANTS AND BARS BY COUNTY**  
**(Subset of Those Establishments Responding in Both Years)**



**MAP 1**  
**LOCATION OF THOSE ESTABLISHMENTS THAT RESPONDED IN BOTH 2007 AND 2008**



**LEGEND**

- Respondents in Both Years
- Counties
- ▨ Indian Reservation
- Interstates
- US highways

The geographic distribution of respondents is similar to that of the establishments reported in County Business Patterns. In most counties other than Maricopa, the proportion of respondents was somewhat higher than the percentage of establishments in County Business Patterns. Thus, the less-populous areas of Arizona are somewhat overrepresented in the survey results.

In several Arizona communities — Flagstaff, Guadalupe, Prescott, Sedona and Tempe — a comprehensive smoking ban already was in place before the implementation of the statewide ban. Though the number of respondents from these municipalities is only 35, the 9 percent of the respondents located in these communities is greater than the population share of these communities.

### **Factors Affecting Businesses**

Factors currently affecting establishments were categorized based on responses to the open-ended question regarding what most affected business. Among those responding in both years, the most common responses in 2007 (each with at least 10 percent of the responses) were categorized as “company specific,” “seasonal/weather/tourism,” “advertising/marketing,” and “population shifts.” In 2008, the most frequently mentioned factors were considerably different, with economic conditions by far most frequently mentioned, followed by the seasonal category, and gasoline prices.

The most dramatic shift between responses in 2007 and 2008 occurred in the economic conditions category, with the share increasing from 7 to 26 percent. More specific macroeconomic factors also were mentioned more frequently in 2008 than in 2007, including gasoline prices (11 percent versus 3 percent), consumer spending habits, and costs of inputs. The only other factors with more mentions in 2008 than 2007 were DUI laws and employer sanctions/immigration, both of which were infrequently mentioned.

In contrast, very large declines occurred between 2007 and 2008 in the number citing company-specific factors and advertising/marketing. Population shifts and seasonal/weather/tourism factors also were mentioned less often in 2008. The proportion of respondents citing the smoking ban as the major factor did not vary between 2007 and 2008, being approximately 4 percent in both years.

Table 1 provides complete responses to the question of the factor most affecting the business. As a whole, the responses in 2008 and 2007 are statistically different from each other. Few respondents indicated that the same condition was the most important in both years.

When asked more specifically whether local economic growth and population growth affected their business positively or negatively, 74 percent responded in 2007 that such conditions were a positive driver of business and only 4 percent answered negatively. However, in 2008 only 43 percent considered these conditions to have a positive effect while 13 percent found them to be negative. Only 9 percent had a more positive response in 2008 than 2007, while 43 percent had a more negative response.

Often economic growth brings competition into the market. When questioned about how nearby competition affects their business, 19 percent of survey respondents in 2007 saw it as a positive



**TABLE 1**  
**FACTOR MOST AFFECTING ARIZONA RESTAURANTS AND BARS**  
**IN 2007 AND 2008**

	2007		2008		Change
	Number	Percent	Number	Percent	in Percent
Economic conditions	27	7.4%	97	26.5%	19.1
Gasoline prices	10	2.8	41	11.2	8.4
Consumer spending habits	4	1.1	24	6.6	5.5
Costs of inputs	10	2.8	19	5.2	2.4
DUI laws	1	0.3	10	2.7	2.4
Employer sanctions/immigration	0	0.0	6	1.6	1.6
Labor shortage	2	0.6	1	0.3	-0.3
Smoking ban	15	4.1	14	3.8	-0.3
Construction	17	4.7	16	4.4	-0.3
Minimum wage	8	2.2	1	0.3	-1.9
Competition	25	6.9	17	4.6	-2.3
Seasonal/weather/tourism	64	17.6	45	12.3	-5.3
Population shifts	35	9.6	14	3.8	-5.8
Advertising, marketing	37	10.2	7	1.9	-8.3
Company specific	70	19.3	32	8.7	-10.6
Other	17	4.7	10	2.7	-2.0
Not sure	21	5.8	12	3.3	-2.5
TOTAL	363	100.0	366	100.0	

factor, while 30 percent thought that nearby competition had a negative effect. Half of the respondents in 2007 said that nearby competition had no effect at all on their business. In 2008, the responses were somewhat different, with the percentage stating that competition is a positive influence and the share indicating it to be a negative factor both a little lower than in 2007. Compared to 2007, about one-fourth of the respondents had a more positive response in 2008, and a similar percentage had a more negative response.

When asked about the effect of changes in their neighborhood, half of the respondents answered positively in 2007. The positive share was only 30 percent in 2008, with the share indicating no effect higher than in 2007. Only 17 percent had a more positive response in 2008 than 2007, while 38 percent had a more negative response. Since neighborhood conditions are not likely to change appreciably in one year, it appears that among some of the individuals surveyed the response to this question was affected by the deterioration in general economic conditions.

Arizona voters in November 2006 also passed an initiative establishing a state minimum wage. On January 1, 2007, the minimum wage became \$6.75, compared to the federal minimum of \$5.15. When asked about the effects of the minimum wage, 38 percent of the respondents in 2007 saw it as a negative factor and 14 percent as a positive factor. Each of these shares was lower in 2008 as more than half felt that the minimum wage had no effect. Compared to 2007, about one-fourth of the respondents had a more positive response in 2008, and a percentage nearly as large had a more negative response.

The other question addressing the factors affecting business was the open-ended question “What do you think would improve the bottom line of your business?” While many responses were given, four categories stand out. “More customers” was the number one response in 2007 and ranked second in 2008 to the “economy.” Advertising, especially in 2007, and “costs of inputs,” especially in 2008, also were common responses. In contrast, repealing the smoking ban was cited by just 3 percent of the respondents in both years.

### **Business Conditions**

As would be expected by the sizable increase in the number of respondents mentioning negative economic conditions as a factor affecting their business, the results from the first three questions of the survey in 2008 relative to 2007 reflect the worsening business conditions of the restaurants and bars that participated in the survey in both years.

Excluding respondents that indicated that they were a new business since the beginning of 2005 and therefore could not do the revenue comparison, 63 percent in the 2007 survey said that revenue in 2006 had increased at least 3 percent compared to 2005. In the 2008 survey, only 41 percent said that revenue in 2007 had increased at least 3 percent compared to 2006. Only 16 percent of the 2007 respondents said that revenue fell in 2006 by at least 3 percent, but in the 2008 survey, 36 percent said that revenue fell by at least that much in 2007. Responses to the question regarding the number of customers were similar.

Comparing the responses to the revenue question over the two years by respondent, 10 percent of the establishments had an increase in revenue in 2007 but had had no revenue change or a decline in 2006. Just more than half had the same response to the question in both years (e.g. revenue increased in each year). Thirty-nine percent either had a revenue loss in 2007 after having flat or rising revenues in 2006, or had flat revenues in 2007 after a gain in 2006.

Responses to the expected revenue question also reflect the deterioration in economic conditions. Seventy-eight percent of the 2007 respondents expected revenue to rise in 2007 (compared to an actual figure of 41 percent based on the 2008 survey), but only 48 percent expected a rise in 2008. Only 9 percent expected revenue to decline in 2007, but this figure was up to 26 percent in 2008.

### **The Smoking Ban as a Factor Affecting Business**

Relatively few of those interviewed in both years mentioned the smoking ban as the primary factor affecting their business (approximately 4 percent in both 2007 and 2008). Less than 2 percent of the establishments cited the smoking ban in both years. A bit more than 2 percent mentioned the ban in 2007 but not 2008 and a similar proportion mentioned it in 2008 but not 2007. Among those who responded to the survey only in 2007, the smoking ban was cited as the factor most affecting the business by less than 5 percent. A similar percentage of those who responded to the survey only in 2008 mentioned it.

Part of the reason for the small percentage of respondents citing the smoking ban as the factor most affecting business is that the implementation of the statewide smoking ban forced only a minority of the eating and drinking establishments to change their smoking policy. More than half (53 percent) of the establishments were unaffected by the statewide ban in that either they

already did not allow smoking anywhere in their establishment or they were exempt from the ban (veterans or fraternal clubs). In addition, 4 percent of the establishments did not allow smoking in 2007, but added a smoking area outside by 2008. In 7 percent of the establishments, the implementation of the ban on inside smoking was offset by the creation of an outside smoking area. In 12 percent, the ban affected only a part of their establishment, with smoking still allowed in one area. Thus, only one-fourth of the establishments shifted from allowing smoking to banning smoking altogether.

However, the smoking ban was more frequently cited among one subgroup. Combining the survey questions on whether outside seating is available and on the establishment's smoking policy with the type of establishment (bar, restaurant with a liquor license, and restaurant without a liquor license) reveals that approximately one in five bars that allowed smoking throughout the establishment prior to the ban indicated in the 2007 survey that the ban was affecting their business. In the 2008 survey, a lesser proportion of these bars that had only inside seating in which smoking was now banned or that had inside and outside seating in which smoking was banned indoors cited the smoking ban as having the most effect. The decline in percentage in 2008 may result from the deterioration in general economic conditions that occurred between 2007 and 2008.

A smaller percentage of restaurants with liquor licenses that in 2007 allowed smoking throughout their business but that in 2008 had to implement the no-smoking policy indoors cited the smoking ban as having an effect. Only about 5 percent of such establishments mentioned the smoking ban in 2007, with the proportion slightly lower in 2008. Less than 1 percent of other eating and drinking establishments mentioned the smoking ban.

Interestingly, no significant difference in responses occurred between the subset of establishments that previously had been affected by a local smoking ban and those that had allowed smoking until the statewide ban was implemented. It may be that establishments affected by an earlier local smoking ban (only two respondents: one in 2007 and one in 2008) still were citing the smoking ban years later as the factor most affecting their business.

### **Establishments Citing the Smoking Ban as Having the Most Effect**

Of those establishments that responded in both years, a small minority mentioned the smoking ban in the "most effect" question in each year. Drawing conclusions is hampered by the small number of respondents mentioning the smoking ban and by the small number of establishments in many of the subcategories. Thus, this section looks specifically at those establishments mentioning the ban by using **all** survey responses by year. Detailed results are presented in Table 2.

In the 2007 survey, revenue growth and customer growth in 2006 was about the same for establishments mentioning the smoking ban as for all respondents. In the 2008 survey, however, the smoking ban subset reported significantly worse revenue and customer growth in 2007 than the other respondents. Similarly, this subset had significantly more pessimistic responses to the question regarding expected revenue in the current year in both the 2007 and 2008 survey. The responses to this question were especially negative in 2007, and proved to be too pessimistic compared to the responses of the 2008 respondents on the question of revenue growth in 2007.

**TABLE 2**  
**RESPONDENTS INDICATING THAT THE SMOKING BAN**  
**WAS HAVING THE MOST EFFECT ON BUSINESS**

	Responded in Both Years		Responded		Responded		Responded	
	2007	2008	2007	2008	Only in 2007	Only in 2008	Only in 2007	Only in 2008
	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent
<b>Smoking Ban Total</b>	15	4.1%	14	3.8%	12	4.7%	21	4.7%
<b>Establishment Type:</b>								
Bars	11	10.3	8	7.4	10	13.7	15	18.3
Restaurants w Liquor	3	1.4	6	2.8	2	1.7	3	2.1
Restaurants wo Liquor	0	0.0	0	0.0	0	0.0	2	0.9
<b>Detailed Type:</b>								
Bar 1*	5	19.2	4	11.8	6	40.0	9	30.0
Bar 2*	5	20.8	3	6.3	3	18.8	6	17.6
Restaurant w 1*	2	7.1	4	5.1	0	0.0	2	4.0
Restaurant w 2*	1	4.3	2	3.1	2	22.2	1	2.2
Other	0	0.0	1	0.8	1	0.5	2	0.8
<b>Prior Smoking Ban:</b>								
No	14	4.2	13	3.9	12	5.3	21	5.1
Yes	1	3.0	1	2.9	0	0.0	0	0.0
<b>County:</b>								
Maricopa	5	2.5	6	3.0	4	2.8	7	2.8
Pima	0	0.0	3	5.2	5	9.1	7	8.4
Other	10	9.4	5	4.6	3	5.8	7	5.9
<b>Seating Capacity:</b>								
100 or Less	6	4.8	5	4.0	5	4.6	6	2.8
101-200	6	5.3	6	5.5	4	5.9	9	7.8
201 or More	3	2.6	3	2.6	3	4.7	6	7.3
<b>Business Age (Years):</b>								
2 or Less	1	1.4	1	2.4	2	3.8	3	4.8
3-5	1	1.6	2	2.9	3	7.1	2	2.4
6-10	4	5.4	5	6.3	4	7.4	5	4.6
11-20	5	6.8	1	1.4	2	4.4	7	7.3
21 or More	4	5.8	5	5.7	1	1.9	4	5.8
<b>Entertainment Offered:</b>								
No	5	2.2	3	3.7	6	4.0	1	1.0
Yes	10	7.7	11	3.9	6	6.0	20	5.8

\*

Bar 1: Bars with inside seating only, smoking allowed in 2007 but not in 2008

Bar 2: Bars with inside and outside seating, smoking allowed throughout in 2007 but only outside in 2008

Restaurant w 1: Restaurants with liquor licenses with inside seating only, smoking allowed in 2007 but not in 2008

Restaurant w 2: Restaurants with liquor licenses with inside and outside seating, smoking allowed throughout in 2007 but only outside in 2008

Note: some figures do not add to the total because some respondents did not answer every question.

Those citing the smoking ban also were more negative on the effect of local growth on their business in both 2007 and 2008. However, the subset's responses to the neighborhood condition, minimum wage, and nearby competition questions were not significantly different from the larger group.

Some of those citing a negative effect from the smoking ban indicated the impact was significant:

- “The smoking ban caused a substantial decrease in business.”
- “The smoking laws have caused us to lose our smoking customers.”
- “The smoking law caused a 25 percent to 30 percent to 40 percent decrease in customers.”
- “The smoking law in Arizona: 40 percent of our customers left as a result.”
- “The smoking law dropped revenues by \$15,000 monthly.”
- “The smoking ban and the DUI law have caused a decrease in business. Eighty percent of bar goers are smokers; many neighboring bars have gone out of business.”

Of the relatively small number of establishments that mentioned the smoking ban in response to the “most effect” question, a few indicated that the ban was having a positive influence on their business. In 2007, one respondent thought “Sales will increase as a result of changing to a nonsmoking restaurant.” In 2008, one respondent noted “The increase we are seeing is due to the smoking ban. Different from other bars and establishments, we have a large amount of outdoor seating enabling people to smoke.” These comments are in addition to those made by managers of veterans or fraternal clubs that noted an increase in business due to their being exempt from the smoking ban.

The establishments citing the smoking ban differ from other establishments in some regards. Those citing the ban are disproportionately bars that had allowed indoor smoking prior to the implementation of the smoking ban. A lower proportion has outside seating (significant in 2008 but not 2007) but a higher proportion offer entertainment (significant in 2007 but not 2008). A higher proportion are mid-sized and a lower share are small in seating capacity (significant in 2008 but not 2007). No difference exists between the two subsets in the age of the business. Though a lesser share are in communities that previously imposed a smoking ban, the difference is not significant.

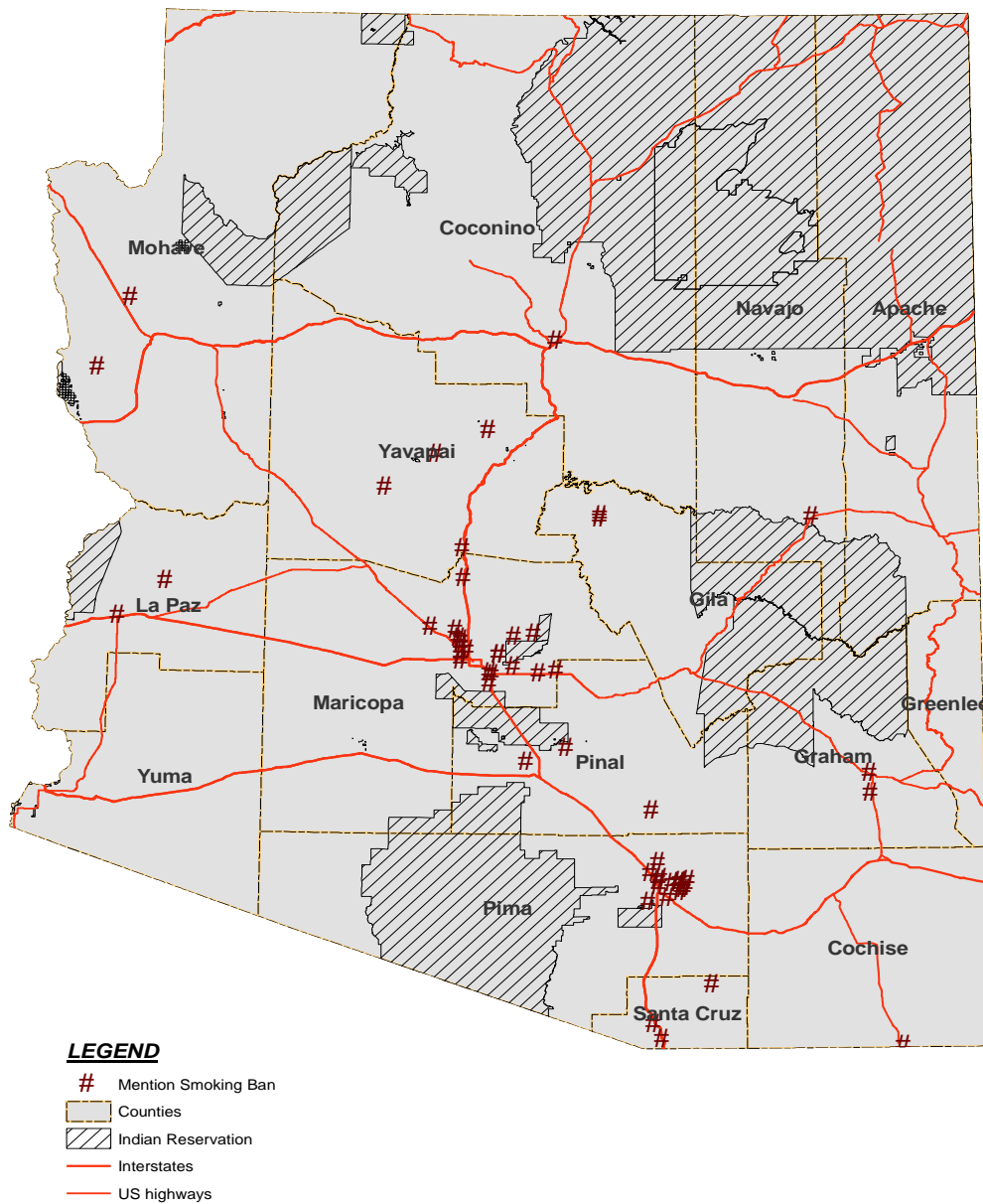
The locations of those establishments citing the smoking ban in either 2007 or 2008 are shown in Map 2. Relative to other establishments, in 2007 a significantly lower share were located in Maricopa County, with more especially in Pinal and Santa Cruz counties. In 2008, a lower share were in Maricopa County and a greater share in Pima County, but this relationship was not significant.

### **Differences in Responses Among Three Groups**

Since few respondents cited the smoking ban as most affecting their business, this section looks at the relationships across three broader groups, again using all survey responses:

- Bars that allowed smoking throughout their facility prior to the implementation of the smoking ban, including those with only inside seating and those with both inside and outside seating, and no longer allow smoking indoors.

**MAP 2**  
**LOCATION OF THOSE ESTABLISHMENTS THAT CITED THE SMOKING BAN**  
**AS HAVING THE MOST EFFECT ON THEIR BUSINESS**  
**(Based on All Responses From Either 2007 or 2008)**



- Restaurants with liquor licenses that allowed smoking throughout their facility prior to the implementation of the smoking ban, including those with only inside seating and those with both inside and outside seating, and no longer allow smoking indoors.
- All other eating and drinking establishments.

The rationale for selecting these three groups is that the bar subset had the highest proportion citing the smoking ban (23 percent in 2007 and 15 percent in 2008), the restaurant subset had a small percentage cite the ban (6 percent in 2007 and 4 percent in 2008), while almost none of the other establishments mentioned the ban (less than 1 percent in both years). Sample size is greater in these groups than in the subset of those citing the ban as having the most effect.

Many of the results are significantly different across the three groups. In both years, the “all-else” group reported stronger growth in revenue in the prior year, with the restaurant group having slightly weaker gains than the bar subset. The same was true of the growth in customers, though the relationship was not significant in 2008. Expected growth in 2007 was strongest in the all-else group and slightly higher among the restaurant subset than the bar subset. The relationship was not significant in 2008, though the restaurant group had the weakest expectations.

Thus, though bars have been found in previous studies as well as in the current study to have the highest incidence of a perceived negative impact from a smoking ban, a differential does not exist between the bar and restaurant groups in either actual or expected revenue growth — even though the bars citing the smoking ban reported weaker revenue figures. The bar subset reported stronger revenue growth in both 2006 and 2007 than the restaurant subset (though weaker than the all else group). Expected growth was similar in the two groups in each year. This supports the conclusion that while some bars may be affected adversely by the smoking ban, others with the similar characteristics have benefited from the ban.

Looking at the four factors specifically included in the survey, the 2007 results show significant differences across the three groups in each case, but in only one factor is the relationship significant in 2008. Interpreting the results as the difference between the percentage responding ‘positive’ and the share answering ‘negative,’ bars reported the weakest numbers on the local growth and neighborhood conditions factors, but the strongest numbers on the minimum wage and nearby competition factors. The restaurant subgroup had the weakest figures on the minimum wage and competition factors.

Some of the characteristics of the three groups also are significantly different. Establishments in the all-else group have the smallest average capacity, those in the bar subset have been in business the longest, and the sample included relatively few bars in Maricopa County. In 2007, bars offered significantly more entertainment, but the relationship was not significant in 2008.

### **Change in Growth Rate of Revenue Between 2006 and 2007**

The first question on the survey asked whether revenue in the prior calendar year increased (by more than 3 percent), stayed about the same, or decreased (by more than 3 percent) relative to the year before. A variable capturing the change in growth rate of the prior year revenue between the responses in 2007 and 2008 was created. The constructed variable of change in revenue between 2006 and 2007 has three possible values: (1) improvement, for example if the

respondent said 2007 revenue increased but that revenue decreased or stayed the same in 2006; (2) no change; and (3) deterioration. A similar variable could be created for the second question on the survey, regarding the number of customers, but since its results are similar to those of the first question, the analysis in this section is limited to the revenue question. This analysis is based only on those restaurants and bars that responded to the survey in each year.

Revenue growth was higher in 2007 than in 2006 for only 10 percent of respondents. It was lower for 39 percent. The constructed change in revenue variable was not significantly related to most of the other variables. For example, revenue growth in 2007 relative to 2006 was not significantly different between bars, restaurants with liquor licenses, and restaurants without liquor licenses. Thus, the hypothesis that bars would be most affected by the smoking ban, followed by restaurants with liquor licenses, was not proven. In fact, bars performed the strongest in 2007 relative to 2006.

Similarly, the change in revenue was not related to the variable that combined smoking policy with the presence of outside seating. Looking specifically at those establishments that cited the smoking ban as the factor having the most effect, the relationship also was not significant, though those citing the ban in 2008 had a worse performance on the change in revenue.

Another hypothesis is that establishments located in a community that already had a local smoking ban in place prior to the implementation of the statewide smoking ban should not have been impacted by the statewide ban. Thus, if the statewide smoking ban is affecting business conditions, it is expected that the change in revenue between 2006 and 2007 would have been more favorable among establishments subject to a prior smoking ban. While the change in revenue was stronger at establishments in the communities with an earlier ban (21 percent improving and 28 percent deteriorating), the difference in the responses from establishments in communities without an earlier ban was not significant.

Similarly, though respondents in communities with a prior ban were slightly more optimistic on expected revenue in the current year in both 2007 and 2008, the results were not significantly different from those of establishments not affected by a prior smoking ban. A constructed variable that compared the responses over the two years to the expected revenue question also did not display a significant difference between the subset of establishments that had been subject to a prior smoking ban and other establishments.

The change in revenue was positively related to the change in responses to the local growth and neighborhood conditions factors, with the latter relationship significant. That is, establishments with an improvement in revenues between 2006 and 2007 also tended to respond more favorably in 2007 than 2006 to the questions regarding the effect of local growth and neighborhood conditions on their business.

### **Closed Businesses**

A total of 38 establishments that responded to the 2007 survey were found to be out of business in 2008. An effort was made to determine why these businesses failed, by trying to locate the owners or by contacting the landlords. Three of the 38 establishments were closed temporarily for remodeling or moving. Of the other 35, information was collected on 13. Various reasons



were given for the closing of the establishment, such as poor location or poor business skills of the owner, but none mentioned the smoking ban as a reason.

The 35 establishments that closed over the course of the year made up only 5 percent of the total contacted in 2007. This is less than the average number expected to close in a year, based on the age of the establishments that participated in the 2007 survey and information on the number of business failures by age of business. (See Professor Scott Shane of Case Western Reserve University at <http://www.smallbiztrends.com/2008/04/startup-failure-rates.html/> and Professor H.G. Parsa of Ohio State University at <http://researchnews.osu.edu/archive/restfail.htm>).

A comparison of the results of the 2007 survey of the 35 businesses that permanently closed to all respondents in 2007 shows some significant differences. First, a much lower share of the closed businesses were bars. Second, a much higher percentage of the closed businesses had opened in the last year. Third, of those open for a longer period, revenue performance in 2006 of the closed businesses was markedly weaker. Fourth, expected revenue performance in 2007 was weaker among businesses that closed. Fifth, the responses to the most effect question were considerably different among the closed businesses, with higher proportions indicating a company-specific reason, competition, and gasoline prices, as well as a higher proportion being unsure. Sixth, not one of the closed businesses mentioned the smoking ban, either as the factor most affecting business or on the question as to what would most improve the bottom line.

## **ANALYSIS OF ACTUAL RESTAURANT AND BAR SALES**

State government transaction privilege (sales) taxes collected by Arizona retailers and sent to the Arizona Department of Revenue (DOR) is the source of the sales data. The tax data are reported by DOR as of the month in which DOR receives the tax revenues, which typically is the month after the taxable sales were made. The DOR data represent an accounting series, not an economic time series, in that reporting errors (for example, late reporting by a retailer or reporting in an incorrect category) are not corrected. Aggregate sales tax collections are reported by the department, but data for individual companies are not available.

Transaction privilege taxes are classified into a number of categories. For this analysis, taxes collected in two categories are of interest. The retail sales category includes the subcategories of general merchandise, apparel and accessories, furniture, building materials, food stores (only the taxable items — food to be consumed at home is exempt from the state sales tax), motor vehicles, other vehicles, and miscellaneous retail sales. The other category of interest is restaurants and bars.

In this section, the aggregate sales tax data are investigated to determine if the smoking ban had a noticeable effect on overall activity at restaurants and bars. Two separate time series of sales tax data are examined. First, a 23½-year time series of quarterly data for the retail and restaurant and bar categories are analyzed. Second, a shorter 3½-year time series of monthly data for subcategories of the retail sales and restaurant and bar categories are examined.

### **Long Time Series of Broad Categories**

For the longer period, quarterly data from first quarter 1985 through second quarter 2008 are used. The long time series consists of the restaurant and bar category, the retail category, and the retail category less the motor vehicle subcategory.

Restaurant and bar sales in Arizona follow a seasonal pattern, in part due to tourists and seasonal residents. Over time, a strong trend is present in the unadjusted data, reflecting growth in the Arizona population and economy, as well as inflation. In the last 5 quarters (since the smoking law was enacted in May 2007) the rate of growth in restaurant and bar sales has slowed. The initial decrease was similar to that preceding the last recession in 2001, but since late 2007 the year-over-year comparison is the weakest since the time series began in 1985.

The smoking ban is only one of several possible causes of the weakness in restaurant and bar sales since spring 2007. The overall Arizona economy has deteriorated considerably since then due in large part to the serious problems in the housing sector, with rising energy costs also contributing. The employer sanctions law that went into effect at the beginning of 2008 also may be contributing to the atypical slowing since late 2007. Stricter enforcement of DUI laws in recent months also may have impacted sales adversely at establishments that offer alcohol.

In order to sort out the possible causes of the slowdown in retail and bar sales, a comparison is made to sales in the retail category. As seen in Chart 3, the unadjusted year-over-year percentage growth rates in retail sales and restaurant and bar sales have been similar. Since mid-2006, the

**CHART 3**  
**YEAR-OVER-YEAR PERCENT CHANGE IN UNADJUSTED SALES IN ARIZONA**



retail category has fared worse than the restaurant and bar category, with no change in the relationship apparent when the smoking ban went into effect (the vertical line indicates the implementation of the smoking ban).

### **Comparing Actual Restaurant and Bar Sales to Forecasted Values**

Based on multiple regression analysis using year-over-year percent changes from the beginning of 1986 through the first quarter of 2007 (until the smoking ban went into effect), a forecast of the value of restaurant and bar sales can be made as if the smoking ban had not taken effect. Three regressions were estimated, each with the amount of total restaurant and bar sales as the dependent variable. Since the dependent variable was not adjusted for seasonality, inflation, or population growth, independent variables were included in each regression to account for seasonality (three dummy variables) and trend.

In the first regression, the total amount of retail sales in the state is the key independent variable. In the second version, total retail sales less motor vehicle sales is the key independent variable. Motor vehicle sales are netted out of aggregate retail sales under the assumption that big-ticket transactions like automobiles are discretionary purchases that behave far differently than restaurant and bar sales. In the third version, other than the trend and seasonal variables, two independent variables are used: the level of personal income and the year-over-year percent change in employment.<sup>3</sup> In each regression, a significant amount of the variance of restaurant and bar sales over the time series is explained.

<sup>3</sup> Numerous variations of this model were tested. Alternatives included levels and differences of personal income and employment as well as distributed lag specifications. The specification was chosen based on in-sample

From each regression equation, forecasted values of restaurant and bar sales were calculated from the coefficients of each independent variable and the actual values of those independent variables. In the third regression, personal income and employment data for the first two quarters of 2008 had to be estimated. These estimates were consistent with the estimates used in the baseline scenario of the state revenue forecasting model of the Office of Strategic Planning and Budget (OSPB).<sup>4</sup>

The forecasted values from each of the three forecasting models are shown in Chart 4. The forecasts are accompanied by the 95 percent confidence interval for the forecasts as well as the actual restaurant and bar sales data. Based primarily on the retail category (the top graph), restaurant and bar sales during the five quarters since the implementation of the smoking ban have been higher than predicted, exceeding the upper bound on the confidence interval of the forecast in each quarter. These results are consistent with the evidence in Chart 3, suggesting that restaurant and bar sales in recent quarters have been historically low but robust when compared to the overall pace of retail sales. Based primarily on the retail category less the motor vehicle subcategory (the middle graph), restaurant and bar sales during the five quarters since the implementation of the smoking ban also have been higher than predicted, near or above the upper bound of the confidence interval of the forecast in each quarter.

The results from the third regression (the bottom graph), which is based on a model of economic activity as measured by the level of state personal income and the growth in employment, are considerably different. In this model, predicted restaurant and bar sales are close to the actual value, being higher in two quarters and lower in three quarters. The actual value is within the confidence interval in three quarters and slightly above the upper bound in two quarters.

Thus, the analysis of the restaurant and bar category using the long time series provides no evidence that the smoking ban adversely affected aggregate restaurant and bar sales.

### **Short Time Series of Specific Categories**

Since 2004, DOR has compiled data on tax collections by the NAICS (North American Industry Classification System) classification of each retail, restaurant and bar establishment. Thus, for this shorter time period, the restaurant and bar category can be subdivided into a full-service restaurant subcategory (most establishments in this subcategory have a liquor license), a limited-service restaurant subcategory (few establishments in this category have a liquor license), and a bar subcategory (establishments in this subcategory derive the majority of their revenues from the sale of alcohol).

Similarly, the retail category can be subdivided into a number of subcategories. The value of these subcategories to this study on the smoking ban is to distinguish “day-to-day” retail purchases from big-ticket items such as automobiles and furniture. The day-to-day purchases

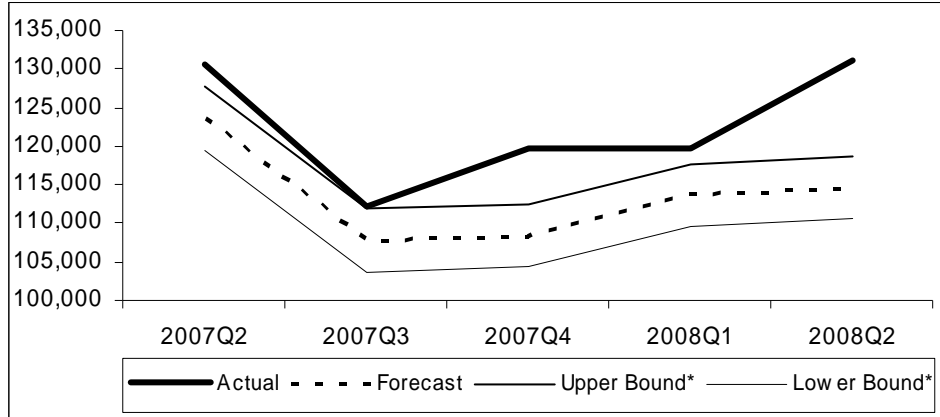
---

explanatory power of the variables. Specification alternatives had no impact on the overall conclusions of the analysis.

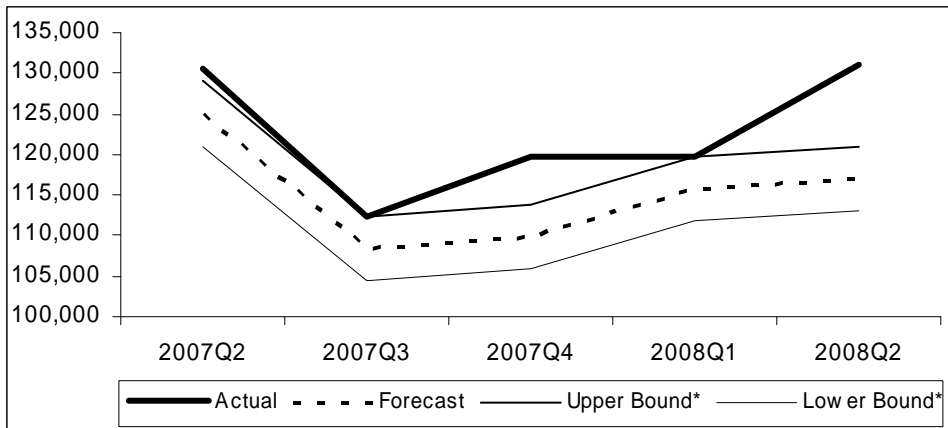
<sup>4</sup> Data on personal income by state are available only after considerable lags and are subject to revision. Given the slow pace of growth in the Arizona economy in 2008, OSPB estimates personal income growth to be 3.5 percent for quarter 1 and 2.0 percent for quarter 2. Data used for the employment growth forecasts are consistent with the most recent forecasts released by research economists at the Arizona Department of Commerce. For the first half of 2008, wage and salary employment declined at approximately a 1 percent pace.

# **CHART 4** **RESTAURANT AND BAR TAX COLLECTIONS IN ARIZONA** (In Thousands of Dollars)

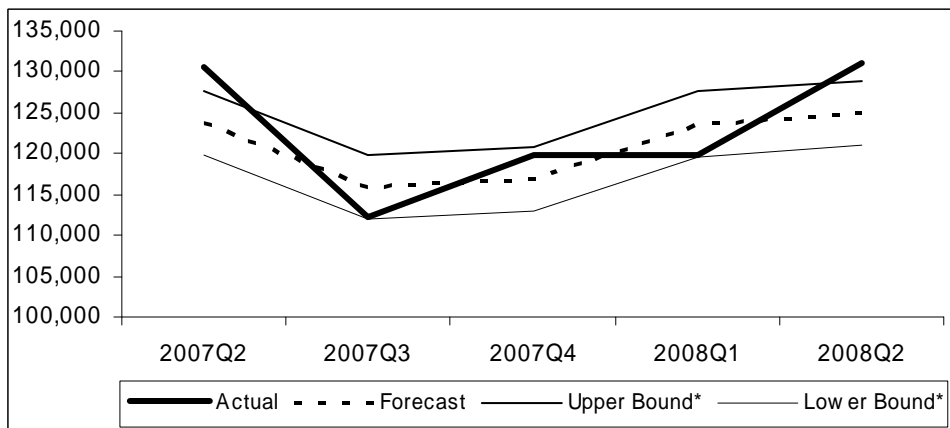
## **FORECAST BASED ON RETAIL**



## **FORECAST BASED ON RETAIL LESS MOTOR VEHICLES**



## **FORECAST BASED ON PERSONAL INCOME AND EMPLOYMENT**



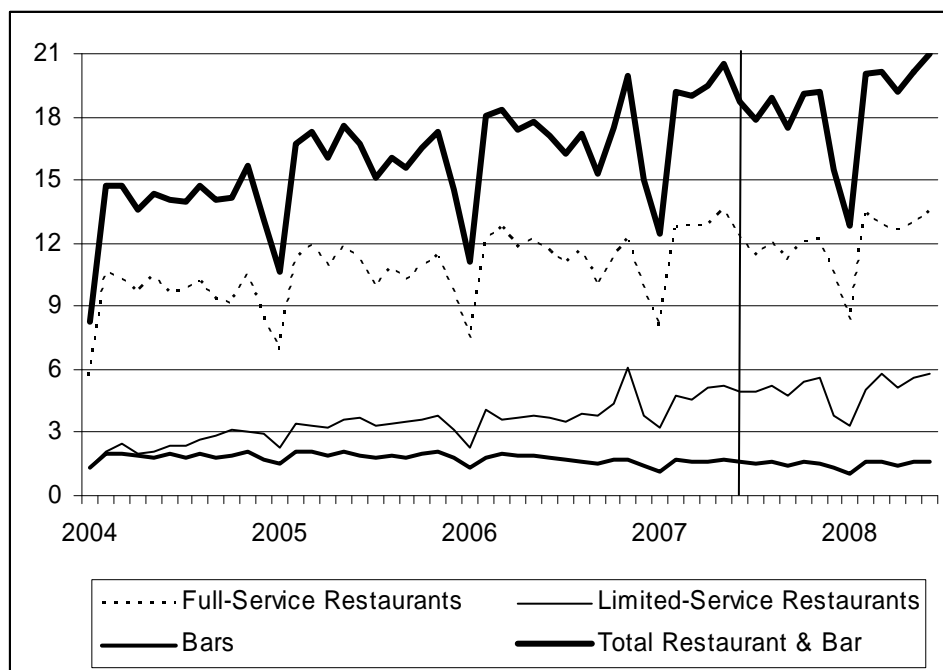
\* Of confidence interval

include taxable sales at food and liquor stores, miscellaneous retail purchases (at an array of specialty retailers, such as pharmacies, florists, and electronics warehouses), and general merchandise stores (mainly department stores and discount warehouses). In addition to considering each of these three subcategories separately, these three subcategories are totaled to provide an overall measure of retail sales minus infrequently purchased big-ticket items.

The analysis is focused on the ratios of sales in the various subcategories of restaurants and bars to sales in the various subcategories of retail. In particular, the ratios of full-service restaurant sales, limited-service restaurant sales, bar sales, and total restaurant and bar sales to retail sales minus the big-ticket items were analyzed and are presented in Chart 5.

Each ratio has a marked seasonal pattern, declining sharply in the holiday season as general retail purchases surge. Ignoring seasonality, overall restaurant and bar sales steadily increased as a ratio to retail sales less big-ticket items from 2004 into 2008. The increase in the ratio resulted from gains in both the full-service restaurant and limited-service restaurant subcategories. In contrast, bar sales increased slightly faster than did retail sales early in the period but then grew at a slower pace for much of the last three years, resulting in a declining ratio of bar sales to retail sales. However, no change in the slope of the line is apparent at the time the smoking ban took effect.

**CHART 5**  
**RESTAURANT AND BAR SALES IN ARIZONA**  
**AS A RATIO OF RETAIL SALES LESS BIG-TICKET ITEMS**



### **Comparing Actual Ratios to Forecasted Values**

Using an approach similar to the regression analysis of the long time series, forecasted values of the ratios can be calculated from the regression results using the data in the period preceding the implementation of the smoking ban. Given the limited time period from 2004 through early 2007, the specifications of the forecasting models are very simple, including only a constant term, a time trend (and a quadratic trend in the equation with bar sales as the dependent variable, to account for the rising and then falling ratio), and a dummy for the holiday season to capture the obvious seasonality.

Given the shorter time period and monthly data used in these models, the fit is not as high as that of the long time series of quarterly data (the adjusted R-square exceeded .99 in each of the three models using the long time period). Still, the adjusted R-square is high at .80 for total restaurants and bars, .77 for full-service restaurants, and .68 for bars.

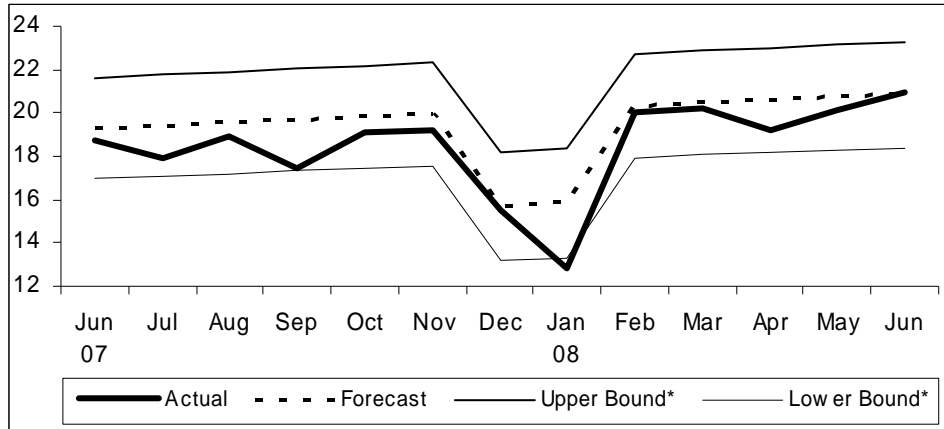
The forecasted ratios from each of three forecasting models (the ratios of full-service restaurant sales, bar sales, and total restaurant and bar sales to retail sales minus the big-ticket items) are shown in Chart 6. The forecasts are accompanied by the 95 percent confidence interval for the forecasts as well as the actual restaurant and bar sales data.

The top graph in Chart 6 shows that actual restaurant and bar sales as a ratio of retail sales less big-ticket items since the implementation of the smoking ban have been close to but slightly below the forecasted values in most months. January 2008 is the only month in which the ratio was below the lower confidence bound. The January 2008 figure represents sales made in December 2007, the peak month of retail activity. Further, legal challenges to the employer sanctions law were rejected in this month and the law was about to take effect. Hence, it is far more likely that the employer sanctions law or a random fluctuation, not the smoking ban, influenced the abnormally low ratio in that one month. The comparison of the actual to forecasted ratio in the full-service restaurant subcategory (the middle graph) is similar, though all actual values are within the confidence interval.

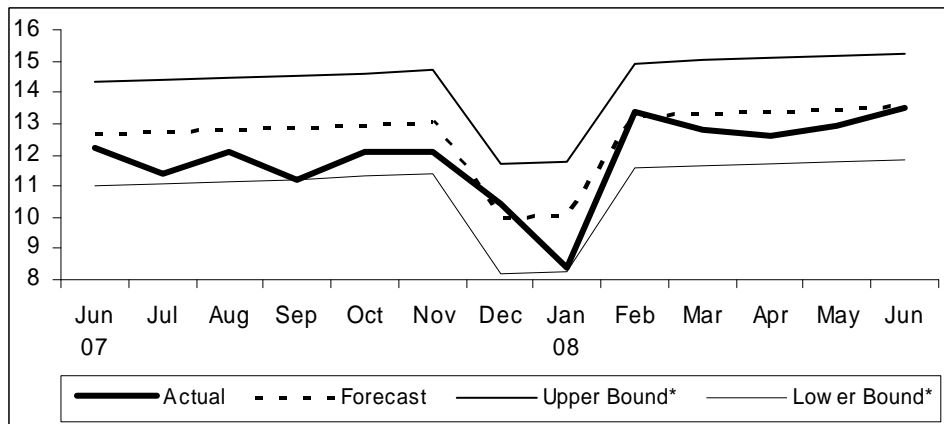
In contrast, in the bar subcategory (the bottom graph), the category hypothesized as most likely to feel adverse effects from the smoking ban, the actual ratio in each month was higher than the forecasted value, with some months exceeding the upper bound of the confidence interval. Thus, like the analysis of the long time series, the analysis of the short time series does not reveal that aggregate restaurant and bar sales were adversely affected by the smoking ban.

**CHART 6**  
**RATIO OF RESTAURANT AND BAR TAX COLLECTIONS TO TAX COLLECTIONS**  
**OF RETAIL LESS BIG-TICKET ITEMS IN ARIZONA**

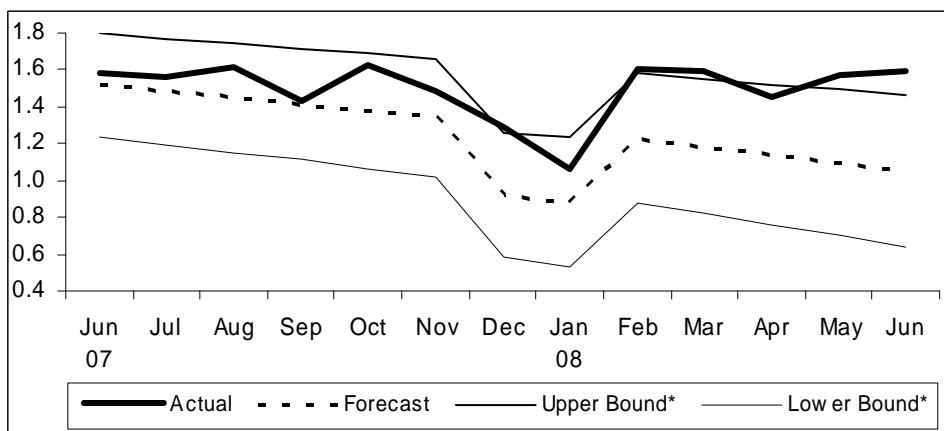
**FORECAST OF ENTIRE RESTAURANT AND BAR CATEGORY**



**FORECAST OF FULL-SERVICE RESTAURANT SUBCATEGORY**



**FORECAST OF BAR SUBCATEGORY**



\* Of confidence interval



## CONCLUSIONS

The conclusions from this study are consistent with those of most prior studies regarding the economic effect of smoking bans. Based on actual aggregate sales data, no effect of the smoking ban has been found. However, this finding is not necessarily inconsistent with consumer behavior changing as a result of the smoking ban. For example, it may be that smokers are not spending as much at restaurants and bars, but that this is offset by nonsmokers spending more at restaurants and bars that no longer allow smoking. It also is possible that smokers still are frequenting bars without a smoking area, but are stepping outside periodically to smoke. Both of these examples are consistent with the aggregate finding of no effect, and also should not have resulted in certain establishments being affected disproportionately.

However, a third possibility that is consistent with the finding of no aggregate effect could result in some restaurants and bars being adversely affected. Smokers still may be spending as much at restaurants and bars, but have switched from establishments without a smoking area to ones that have an outside patio in which smoking is allowed. If this is occurring, the negative effect on individual establishments is not seen in the overall data because other establishments have benefited from the ban.

The other empirical evidence to examine is whether a disproportionate number of establishments failed following the implementation of the smoking ban. However, the percentage of restaurants and bars surveyed in 2007 that had closed by 2008 was not higher than expected, and the number of bars failing was quite small. Not one of the closed businesses mentioned the smoking ban in the 2007 survey, nor was the ban mentioned once in the minority of closed businesses for which reasons for their closing were obtained. Thus, if the smoking ban is having an adverse effect, the effect is not so severe as to cause a business to fail.

Thus, a detailed look at the survey results must be relied upon to provide insight into any effect of the smoking ban. However, surveys are subject to sampling error and nonresponse bias. Further, survey results are subjective. For example, it may be difficult for an owner or manager to determine if a decline in business activity is a result of the smoking ban, the decline in general economic conditions, or some other factor.

While the survey results indicate that only 4 percent of the respondents indicate that the smoking ban was having the most effect on their business, this is misleading in that more than half of the establishments were unaffected by the statewide ban in that either they were exempt from the ban (for example, veterans or fraternal clubs) or already had smoking restrictions in place (either voluntarily or as a result of a local smoking ban).

Combining the survey questions on whether outside seating is available and on the establishment's smoking policy with the type of establishment (bar, restaurant with a liquor license, and restaurant without a liquor license) reveals that one in five bars that allowed smoking throughout the establishment prior to the implementation of the statewide smoking ban indicated in the 2007 survey that the ban was affecting their business. In the 2008 survey, a lesser proportion of these bars that had only inside seating in which smoking was now banned or that had inside and outside seating in which smoking was banned indoors cited the smoking ban

as having the most effect. The decline in percentage in 2008 may result from the deterioration in general economic conditions that occurred between 2007 and 2008.

The other establishments to cite the smoking ban as having an effect were restaurants with liquor licenses that in 2007 allowed smoking throughout their business but that in 2008 had to implement the no-smoking policy indoors. However, only about 5 percent of such establishments mentioned the smoking ban in 2007, with the proportion slightly lower in 2008.

Interestingly, no significant difference in responses occurred between the subset of establishments that previously had been affected by a local smoking ban and those that had allowed smoking until the statewide ban was implemented. It may be that establishments affected by an earlier local smoking ban still were citing the smoking ban years later as the factor most affecting their business.

## REFERENCES

- Americans for Non-Smokers Right's. Economic impact of smoke-free ordinances: Overview. 2006. American Non-Smokers' Rights Foundation.
- Applied Economics. Economic impact of the City of Mesa smoke-free ordinance: Working paper 1, 1996.
- Bartosch WJ, Pope GC. Economic effect of restaurant smoking restrictions on restaurant business in Massachusetts, 1992 to 1998. *Tobacco Control* 2002; 11: 38-42.
- Bialous SA, Glantz SA. Tobacco control in Arizona, 1973-1997. Center for Tobacco Control Research and Education, University of California, San Francisco, 1997.
- Charlton Research Group. Pacific Dining Car Restaurant and Southern California Business Association Survey. San Francisco, CA, 1994.
- Cremieux P, Ouellette P. Actual and perceived impacts of tobacco regulation on restaurants and firms. *Tobacco Control* 2001; 10:33-37.
- Decker, S, Schwartz, A. Cigarettes and alcohol: substitutes or complements? NBER Working Paper 7535, 2000.
- Dunham J, Marlow M. Smoking laws and their differential effects on restaurants, bars and taverns. *Contemporary Economic Policy* 2000; 18(3):326-333.
- Dunham J, Marlow M. The economic incidence of smoking laws. *Applied Economics* (2003): 35:1935-1942.
- Fleck RK, Hanssen A. Why understanding smoking bans is important for estimating their effects: California's restaurant smoking bans and restaurant sales. *Economic Inquiry*, January 2008, 46(1):60-76.
- Glantz SA, Smith LR. The effect of ordinances requiring smoke-free restaurants on restaurant sales. *American Journal of Public Health*; July 1994, 84(7): 1081- 1085
- Glantz SA, Charlesworth A. Tourism and hotel revenues before and after passage of smoke-free restaurant ordinances. *Journal of the American Medical Association* (1999): Vol. 281, No. 20.
- Hammar H. Restaurant owner perceptions of the effects of a smoking ban. *Health Policy*, 2004. 70(2):243-254.
- Hendlin YH, Barnes RL, Glantz SA. Tobacco control in transition: public support and governmental disarray in Arizona 1997-2007. Center for Tobacco Control Research and Education. Tobacco Control Policy Making: United States, January 2008.

Hyland A, Puli V, Cummings M, Sciandra R. New York's smoke-free regulations: effects on employment and sales in the hospitality industry. *Cornell Hotel and Restaurant Administration Quarterly*, 2003.

Jones K, Wakefield M, Turnbull D. Attitudes and experiences of restaurateurs regarding smoking bans in Adelaide, South Australia. *Tobacco Control* 1999; 8(1):62-66.

Masotti L, Creticos P. The effects of a ban on smoking in public places in San Luis Obispo, California, 1991.

Pakko M. On the economic analysis of smoking bans. Federal Reserve Bank of St. Louis Regional Economic Development, 2006, 2(2):115-30.

Sciacca J, Eckrem M. Effects of a city ordinance regulating smoking in restaurants and retail stores. *Journal of Community Health* 1993; 18(3):175-182.

Scollo M, Lal A. Summary of Studies Assessing the Smoke-Free Policies in the Hospital. VicHealth Centre for Tobacco Control, 2005.

The Conference Board of Canada. The economics of smoke-free restaurants. Ontario Campaign for Action on Tobacco, 1996.

## **APPENDIX A: SURVEY INSTRUMENT**

The surveys used in 2007 and 2008 were identical except for the year referred to in various questions. The following reproduces the survey as used in 2007. Note that before the following script was initiated, it was ascertained that the respondent was an owner or manager.

Hello, my name is \_\_\_\_\_ and I'm calling from the W. P. Carey School of Business at Arizona State University. We are conducting a study about local economic conditions and what might be affecting your business's bottom line. The survey should only take about five minutes of your time and will help the community by providing information about Arizona business conditions. All individual business information will be held confidential. Do you mind if I ask you a few questions?

YES = Continue to survey

NO = Is there a time that might be more convenient?

If no again, then thank them for their time and hang up.

AFTER "YES" RESPONSE:

You may skip any questions or stop at any time.

Thinking about your business's 2006 revenue compared to 2005, did your revenue

- Increase by more than 3 percent
- Stay about the same
- Decrease by more than 3 percent

Thinking about your customers in 2006 compared to 2005, has the number of customers

- Increased
- Stayed the same
- Decreased

Thinking about 2007's revenue compared to 2006, do you expect your revenue to

- Increase
- Stay about the same
- Decrease

What is having the most effect on your business right now? \_\_\_\_\_

For the following factors that might affect your business, please tell us whether they have had a positive, negative or no effect:

- Local economic growth including population growth
- Improvements or deterioration of the neighborhood
- The minimum wage
- The amount of competition you have nearby

What do you think would improve the bottom line of your business?

Thank you for your input about these issues. We only have a few more questions about the type of business you have.

What type of restaurant/bar do you have (pizzeria, bar with music)?

What is the capacity of your restaurant/bar?

Do you have outside seating?

Is smoking allowed inside, outside, both, or neither?

Does your business have any other ambience (live music etc)?

How long have you been in business?

Thank you so much for your participation. May we call you back in one year to follow up with how your business has done during 2007?

## APPENDIX B: COMPLETE SURVEY RESULTS

SURVEY QUESTIONS	Responded in Both Years 2007		2008		Responded Only in 2007		Responded Only in 2008	
	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent
<b>Revenue Compared to Prior Year:</b>								
Increase by >3%	190	55.1%	134	38.8%	132	50.2%	116	29.6%
Stay the Same	63	18.3	77	22.3	45	17.1	99	25.3
Decrease by >3%	49	14.2	118	34.2	49	18.6	158	40.3
New Business	43	12.5	16	4.6	37	14.1	19	4.9
TOTAL	345	100.0	345	100.0	263	100.0	392	100.0
<b>Customers Compared to Prior Year:</b>								
Increase by >3%	189	53.7	120	34.2	141	53.0	117	29.2
Stay the Same	59	16.8	85	24.2	46	17.3	100	24.9
Decrease by >3%	61	17.3	130	37.0	42	15.8	163	40.7
New Business	43	12.2	16	4.6	37	13.9	21	5.2
TOTAL	352	100.0	351	100.0	266	100.0	401	100.0
<b>Expected Revenue in Current Year:</b>								
Increase	263	77.8	164	47.8	189	74.4	171	43.4
Stay the Same	46	13.6	91	26.5	37	14.6	119	30.2
Decrease	29	8.6	88	25.7	28	11.0	104	26.4
TOTAL	338	100.0	343	100.0	254	100.0	394	100.0
<b>Most Effect on Business:</b>								
Advertising/Marketing	37	10.2	7	1.9	20	7.9	12	2.7
Company Specific	70	19.3	32	8.7	48	19.0	46	10.3
Competition	25	6.9	17	4.6	20	7.9	21	4.7
Construction	17	4.7	16	4.4	15	5.9	21	4.7
Consumer Spending	4	1.1	24	6.6	2	0.8	20	4.4
Costs of Inputs	10	2.8	19	5.2	3	1.2	29	6.4
DUI Laws	1	0.3	10	2.7	0	0.0	9	2.0
Economic Conditions	27	7.4	97	26.5	18	7.1	131	29.1
Employer Sanctions	0	0.0	6	1.6	0	0.0	9	2.0
Gasoline Prices	10	2.8	41	11.2	12	4.7	41	9.1
Labor Shortage	2	0.6	1	0.3	1	0.4	2	0.4
Minimum Wage	8	2.2	1	0.3	5	2.0	5	1.1
Population Shifts	35	9.6	14	3.8	16	6.3	13	2.9
Seasonal/Weather	64	17.6	45	12.3	49	19.4	36	8.0
Smoking Ban	15	4.1	14	3.8	12	4.7	21	4.7
Other	17	4.7	10	2.7	16	6.3	8	1.8
Not Sure	21	5.8	12	3.3	16	6.3	26	5.8
TOTAL	363	100.0	366	100.0	253	100.0	450	100.0
<b>Local Economic &amp; Population Growth:</b>								
Positive	271	73.6	150	42.5	191	71.0	191	43.2
Negative	16	4.4	46	13.0	8	3.0	60	13.6
No Effect	74	20.1	145	41.1	55	20.5	171	38.7
Not Sure	7	1.9	12	3.4	15	5.6	20	4.5
TOTAL	368	100.0	353	100.0	269	100.0	442	100.0

SURVEY QUESTIONS	Responded in Both Years 2007		2008		Responded Only in 2007		Responded Only in 2008	
	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent
<b>Neighborhood Conditions:</b>								
Positive	183	49.9%	106	30.0%	130	48.5%	125	28.6%
Negative	45	12.3	48	13.6	39	14.6	79	18.1
No Effect	133	36.2	188	53.3	90	33.6	219	50.1
Not Sure	6	1.6	11	13.1	9	3.4	14	3.2
TOTAL	367	100.0	353	100.0	268	100.0	437	100.0
<b>Minimum Wage:</b>								
Positive	51	14.0	38	10.6	47	17.5	45	10.1
Negative	138	37.9	117	32.5	87	32.5	157	35.2
No Effect	161	44.2	198	55.0	124	46.3	233	52.2
Not Sure	14	3.9	7	1.9	10	3.7	11	2.5
TOTAL	364	100.0	360	100.0	268	100.0	446	100.0
<b>Nearby Competition:</b>								
Positive	69	18.8	58	16.2	52	19.5	63	14.3
Negative	110	30.0	92	25.6	76	28.5	97	22.0
No Effect	184	50.1	205	57.1	133	49.8	272	61.7
Not Sure	4	1.1	4	1.1	6	2.3	9	2.0
TOTAL	367	100.0	359	100.0	267	100.0	441	100.0
<b>Improve Business Bottom Line:</b>								
Advertising	55	16.0	45	12.9	43	17.3	57	13.3
Company Specific	16	4.7	17	4.9	11	4.4	29	6.7
Competition	7	2.0	7	2.0	5	2.0	8	1.9
Construction	7	2.0	4	1.1	7	2.8	14	3.3
Costs of Inputs	26	7.6	49	14.0	20	8.0	45	10.5
DUI Laws	0	0.0	3	0.9	0	0.0	8	1.9
Economic Conditions	27	7.9	60	17.1	19	7.6	75	17.4
Government Policies	3	0.9	9	2.6	2	0.8	11	2.6
Increase in Sales	14	4.1	20	5.7	11	4.4	28	6.5
Minimum Wage	6	1.7	3	0.9	4	1.6	9	2.1
More Customers	69	20.1	52	14.9	38	15.3	50	11.6
Remodel	13	3.8	6	1.7	17	6.8	12	2.8
Repeal Smoking Ban	10	2.9	12	3.4	5	2.0	11	2.6
Seasonal/ Weather/ Tourism	13	3.8	7	2.0	6	2.4	11	2.6
Staffing and Hiring Issues	21	6.1	11	3.1	10	4.0	8	1.9
Tax Breaks	3	0.9	6	1.7	2	0.8	4	0.9
Other	19	5.5	16	4.6	17	6.8	12	2.8
Not Sure	35	10.2	23	6.6	32	12.9	38	8.8
TOTAL	344	100.0	250	100.0	249	100.0	430	100.0



SURVEY QUESTIONS	Responded in Both Years 2007		2008		Responded Only in 2007		Responded Only in 2008	
	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent
<b>Type of Restaurant/Bar:</b>								
American	26	7.1%	17	4.7%	8	3.0%	32	7.1%
Bar	55	15.0	54	14.9	36	13.5	49	10.9
Chinese	5	1.4	3	0.8	6	2.3	13	2.9
Coffee Shop	11	3.0	6	1.7	10	3.8	38	8.5
Family Restaurant	37	10.1	54	14.9	19	7.1	34	7.6
Fast Food	7	1.9	12	3.3	9	3.4	28	6.2
Golf Course	8	2.2	8	2.2	4	1.5	4	0.9
Greek	4	1.1	3	0.8	3	1.1	4	0.9
Hotel	9	2.5	13	3.6	6	2.3	3	0.7
Italian	17	4.6	12	3.3	14	5.3	18	4.0
Mexican	37	10.1	21	5.8	33	12.4	28	6.2
Pizzeria	40	10.9	32	8.8	23	8.7	38	8.5
Private Club	8	2.2	3	0.8	5	1.9	1	0.2
Sandwich/ Deli	3	0.8	2	0.6	8	3.0	33	7.4
Steakhouse	35	9.5	24	6.6	29	10.9	26	5.8
Other Restaurants	40	10.9	71	19.6	31	11.7	64	14.3
Other Establishments	25	6.8	27	7.5	22	8.3	36	8.9
TOTAL	367	100.0	362	100.0	266	100.0	449	100.0
<b>Capacity:</b>								
Up to 30 seats	9	2.5	9	2.6	8	3.1	62	16.8
31-75 seats	59	16.4	57	16.3	65	25.1	92	21.9
76-100 seats	60	16.7	60	17.1	45	17.4	68	16.2
101-200 seats	113	31.4	109	31.1	72	27.8	116	27.6
201-300 seats	76	21.1	76	21.7	47	18.2	52	12.4
301-1000 seats	38	10.6	37	10.6	19	7.3	28	6.7
Over 1000 seats	5	1.4	2	0.6	3	1.2	2	0.5
TOTAL	360	100.0	350	100.0	259	100.0	420	100.0
<b>Outside Seating:</b>								
Yes	201	55.1	216	60.2	143	54.6	258	59.2
No	164	44.9	143	39.8	119	45.4	178	40.8
TOTAL	365	100.0	359	100.0	262	100.0	436	100.0
<b>Smoking:</b>								
Inside	60	16.4	10	2.8	31	11.8	2	0.5
Outside	114	31.2	167	46.0	92	35.1	191	43.4
Both	60	16.4	5	1.4	40	15.3	6	1.4
Neither	131	35.9	181	49.9	99	37.8	241	54.8
TOTAL	365	100.0	363	100.0	262	100.0	440	100.0
<b>Ambience:</b>								
Yes	133	35.9	283	77.3	109	39.8	349	77.7
No	238	64.2	83	2.7	165	60.2	100	22.3
TOTAL	371	100.0	366	100.0	274	100.0	449	100.0

SURVEY QUESTIONS	Responded in Both Years 2007		2008		Responded Only in 2007		Responded Only in 2008	
	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent
<b>Length of Time in Business:</b>								
1 year or less	41	11.3%	13	3.7%	36	13.5%	29	6.8%
2 years	35	9.7	30	8.5	24	9.0	36	8.4
3 years	29	8.0	28	7.9	22	8.3	34	7.9
4-5 years	37	10.2	42	11.8	26	9.8	51	11.9
6-10 years	74	20.4	80	22.5	55	20.7	112	26.1
11-20 years	74	20.4	74	20.9	50	18.8	97	22.6
21-30 years	30	8.3	38	10.7	32	12.0	32	7.5
More than 30 years	42	11.6	50	14.1	21	7.9	38	8.9
TOTAL	362	100.0	355	100.0	266	100.0	429	100.0
<b>CONSTRUCTED VARIABLES</b>								
<b>Location (County):</b>								
Apache	1	0.3	1	0.3	1	0.4	3	0.7
Cochise	11	3.0	11	3.0	7	2.6	9	2.0
Coconino	21	5.7	21	5.7	10	3.7	19	4.2
Gila	7	1.9	7	1.9	1	0.4	4	0.9
Graham	5	1.4	5	1.4	1	0.4	3	0.7
Greenlee	0	0.0	0	0.0	0	0.0	1	0.2
La Paz	4	1.1	4	1.1	3	1.1	4	0.9
Maricopa	203	54.7	203	54.7	157	57.3	250	54.7
Mohave	12	3.2	12	3.2	7	2.6	15	3.3
Navajo	8	2.2	8	2.2	1	0.4	12	2.6
Pima	59	15.9	59	15.9	59	21.5	86	18.8
Pinal	12	3.2	12	3.2	7	2.6	15	3.3
Santa Cruz	6	1.6	6	1.6	2	0.7	5	1.1
Yavapai	14	3.8	14	3.8	14	5.1	25	5.5
Yuma	8	2.2	8	2.2	4	1.5	6	1.3
TOTAL	371	100.0	371	100.0	274	100.0	457	100.0
<b>Prior Smoking Ban:</b>								
Yes	35	9.4	35	9.4	29	10.6	40	8.8
No	336	90.6	336	90.6	246	89.5	417	91.3
TOTAL	371	100.0	371	100.0	275	100.0	457	100.0
<b>Category:</b>								
Bar	110	30.8	110	30.8	78	30.4	82	18.1
Restaurant with Liquor License	215	60.2	215	60.2	132	51.4	146	32.3
Restaurant without Liquor License	32	9.0	32	9.0	47	18.3	224	49.6
TOTAL	357	100.0	357	100.0	257	100.0	452	100.0

CONSTRUCTED VARIABLES	Responded in Both Years 2007		2008		Responded Only in 2007		Responded Only in 2008	
	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent
<b>Combined Smoking Policy and Outside Seating:</b>								
Inside Seating Only, Smoking Allowed	58	15.9%	6	1.7%	41	15.7%	4	0.9%
Inside Seating Only, Smoking Not Allowed	105	28.9	137	38.2	78	30.0	174	40.0
Seating Inside and Outside, Smoking Allowed in Both	49	13.5	3	0.8	28	10.7	2	0.5
Seating Inside and Outside, Smoking Only Allowed Outside	98	26.9	121	33.7	85	32.4	137	31.5
Seating Inside and Outside, Smoking Not Allowed	41	11.3	86	24.0	28	10.7	117	26.9
Seating Inside and Outside, Smoking Allowed Inside Only	13	3.6	6	1.7	2	0.8	1	0.2
TOTAL	364	100.0	359	100.0	262	100.0	435	100.0
<b>Bar:</b>								
Inside Seating Only, Smoking Allowed	26	7.4	6	1.7	17	7.0	3	0.7
Inside Seating Only, Smoking Not Allowed	23	6.6	35	10.1	16	6.6	30	7.0
Seating Inside and Outside, Smoking Allowed in Both	24	6.8	3	0.9	17	7.0	1	0.2
Seating Inside and Outside, Smoking Only Allowed Outside	28	8.0	48	13.9	22	9.0	34	7.9
Seating Inside and Outside, Smoking Not Allowed	2	0.6	12	3.5	3	1.2	7	1.6
Seating Inside and Outside, Smoking Allowed Inside Only	5	1.4	3	0.9	0	0.0	0	0.0

CONSTRUCTED VARIABLES	Responded in Both Years				Responded Only in 2007		Responded Only in 2008	
	2007		2008		Num- ber	Per- cent	Num- ber	Per- cent
	Num- ber	Per- cent	Num- ber	Per- cent				
<b><u>Restaurant Serving Liquor:</u></b>								
Inside Seating Only, Smoking Allowed	28	8.0%	0	0.0%	19	7.8%	1	0.2%
Inside Seating Only, Smoking Not Allowed	58	16.5	79	22.9	37	15.2	53	12.3
Seating Inside and Outside, Smoking Allowed in Both	24	6.8	0	0.0	9	3.7	1	0.2
Seating Inside and Outside, Smoking Only Allowed Outside	59	16.8	64	18.5	39	16.0	46	10.7
Seating Inside and Outside, Smoking Not Allowed	35	10.0	62	18.0	22	9.0	38	8.8
Seating Inside and Outside, Smoking Allowed Inside Only	7	2.0	2	0.6	2	0.8	0	0.0
<b><u>Restaurant Not Serving Liquor:</u></b>								
Inside Seating Only, Smoking Allowed	1	0.3	0	0.0	2	0.8	0	0.0
Inside Seating Only, Smoking Not Allowed	20	5.7	17	4.9	21	8.6	91	21.1
Seating Inside and Outside, Smoking Allowed in Both	0	0.0	0	0.0	0	0.0	0	0.0
Seating Inside and Outside, Smoking Only Allowed Outside	8	2.3	5	1.5	16	6.6	53	12.3
Seating Inside and Outside, Smoking Not Allowed	2	0.6	8	2.3	2	0.8	71	16.5
Seating Inside and Outside, Smoking Allowed Inside Only	1	0.3	1	0.3	0	0.0	1	0.2
TOTAL	351	100.0	345	100.0	244	100.0	430	100.0